Appl. No.: 10/753,713   Docket No. KIM-10188
Amdt. Dated: April 18, 2008
Reply of Office action of November 20, 2007

REMARKS

Claims 1-23 are currently pending in the application. Applicant has amended claims 1, 6 and 18. Applicant requests reconsideration of the application in light of the following remarks.

Request to Admit the Amendment

Applicant believes that the foregoing amendment presents the rejected claims in better form for appeal. Pursuant to 37 C.F.R. § 1.116(a), Applicant requests the Examiner admit the amendment. However, even if the Examiner decides not to admit the amendment under 37 C.F.R. § 1.116(a), Applicant respectfully requests the Examiner admit the amendment pursuant to 37 C.F.R. § 1.116(b). The foregoing amendment is necessary to sufficiently define the invention described in claims 1, 6 and 16. Upon these good and sufficient reasons for why the amendment is necessary and was not earlier presented, Applicant requests the Examiner admit the amendment pursuant to either 37 C.F.R. § 1.116(a) or 37 C.F.R. § 1.116(b).

Rejections under 35 U.S.C. §103

To establish a *prima facie* case of obviousness under 35 U.S.C. §103, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the cited prior art reference must teach or suggest all of the claim limitations. Furthermore, the suggestion to make the claimed combination

and the reasonable expectation of success must both be found in the prior art, and not based upon the Applicants' disclosure. A failure to meet any one of these criteria is a failure to establish a *prima facie* case of obviousness. MPEP §2143.

Claims

Claims 1-3, 6, 13 and 18 were rejected under 35 U.S.C. ' 103(a) as being unpatentable over Gigi (U.S. Publication No. 2002/0184005, hereinafter "Gigi"), in view of Gao (WO 01/03125 A1, hereinafter "Gao"). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

The examiner asserts that Gigi discloses a method for pre-processing an audio signal using a smoothing filtering technique to be processed by a codec using a variable coding rate determined based on a characteristic of the audio signal. This assertion is based on paragraph [0012] of Gigi stating that "[t]he pre-processor comprises a phase-smearing filter to smooth the effect of rapid high energy changes at the input of the quantizer and spectral amplitude warping means to modify the signal spectrum prior to encoding..." and paragraph [0014] of Gigi stating that "[a] further input signal for the ADPCM encoder 4 is formed by a codec mode signal, which is sent or transmitted with the code words to the ADPCM decoder 5. This codec mode signal determines the bit allocation for the code words in the bitstream output of the ADPCM encoder 4 and the ADPCM decoder 5. Depending on the chosen codec mode, the resulting bitstream has a bit-rate of e.g. 12.8, 16, 19.2,21.6, 24 or 32 kbitsls." Based on the above descriptions in Gigi, the examiner asserts that the codec mode signal of Gigi is an input characteristic along with the audio signal used.

However, paragraph [0014] of Gigi indicates that the bit rate in the codec of Gigi is determined by the codec mode signal (a separate signal from the audio signal) without considering the characteristics of the inputted audio signal. In other words, the codec

mode signal of Gigi is a separate input signal from the audio signal and has no relation to the audio signal.

Further, even assuming, arguendo, that the codec mode signal of Gigi is related to the audio signal, which it is not, the present invention is still clearly distinguishable from Gigi. Thus, in the method/ system of the present invention, the audio signal itself is not encoded at a codec having a plurality of encoding rates, but rather is pitch harmonic enhancement (PHE)- preprocessed before it is inputted to the codec. Subsequently, an encoding rate to be used at the codec is determined based on the characteristic of the PHE-preprocessed audio signal, instead of the audio signal itself, where the codec then encodes the PHE-processed audio signal at the determined encoding rate, as recited in independent claim 1 (currently amended) and independent claim 18 (currently amended).

Support for the amendments to claim 1 (currently amended), claim 6 (currently amended) and claim 18 (currently amended) can be found in paragraphs **[0010]** to **[0019]** and **[0027]** of the present application, as originally filed. Again, even assuming, arguendo, that the codec mode of Gigi is related to the audio signal, which it is not, the bit rate of Gigi is determined based on the audio signal itself, while the encoding rate in the method of the present invention is determined based on the PHE-preprocessed audio signal. The reason for performing the PHE preprocessing in the method/ system of the present invention is to increase the coding rate of the audio signal in the codec, which is optimized for human voice and which tends to code other types of the audio signal in a low coding rate, such as an enhanced variable rate coding (EVRC) codec.

Gao fails to overcome the deficiencies of the primary reference, Gigi. Gao does not disclose performing the PHE preprocessing before the audio data is processed by the codec. While Fig. 2 of Gao shows performing PHE processing of speech data in a speech encoder,

Gao simply teaches a speech encoder with no disclosure of a codec having a variable coding rate. Thus, Gao suggests that there is no need to pre-process the speech data to increase the coding rate in the codec and thus teaches away from the proposed combination of Gigi and Gao. Moreover, although Gao discloses performing PHE processing for speech data, the PHE processing is a part of coding the speech data in the speech encoder. Therefore, the PHE preprocessing in the method/ system of the present invention is different from that disclosed in Gao. Thus, claims 1-3, 6, 13 and 18 are not obvious in view of Gigi and/or Gao.

Claims 4-5, 7-12 and 19-21 were rejected under 35 U.S.C. ' 103(a) as being unpatentable over Gigi (U.S. Publication No. 2002/0184005, hereinafter "Gigi"), in view of Gao (WO 01/03125 A1, hereinafter "Gao") as applied to claim 3 above, and further in view of Tuncer ('Signal Injection With Perceptual Criteria', Elektrik, Vol. 6, No. 2, 1998, pp. 89-106, hereinafter "Tuncer") . Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Tuncer fails to overcome the deficiencies of the primary reference, Gigi. There is no disclosure in Tuncer to processing an audio signal wherein the PHE preprocessing enhances the pitch components of the audio signal, as recited in independent claim 1 (currently amended) and independent claim 18 (currently amended). Thus, claim 4-5, 7-12, and 19-21 are not obvious in view of Gigi, Gao, and Tuncer.

Claims 14-17 and 22-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Gigi (U.S. Publication No. 2002/0184005 A1, hereinafter Gigi"), in view of Gao (WO 01/03125 A1, hereinafter "Gao") as applied to claim 1 above, and further in view of Quatieri et al. (U.S. Patent No. 4,856,068, hereinafter "Quatieri"). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Quatieri fails to overcome the deficiencies of the primary reference, Gigi. There is no disclosure in Quatieri to processing an audio signal wherein the PHE preprocessing enhances the pitch components of the audio signal, as recited in independent claim 1 (currently amended) and independent claim 18 (currently amended). Thus, claims 14-17 and 22-23 are not obvious in view of Gigi, Gao, and Quatieri.

Applicant respectfully requests that the obviousness rejections of claims 1-23 be withdrawn.

Regarding Doctrine of Equivalents

Applicant hereby declares that any amendments herein that are not specifically made for the purpose of patentability are made for other purposes, such as clarification, and that no such changes shall be construed as limiting the scope of the claims or the application of the Doctrine of Equivalents.

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CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

It is requested that a two-month extension of time be granted for the filing of this response, and the appropriate extension filing fee of $230 is enclosed herewith.

If any fees, including extension of time fees or additional claims fees, are due as a result of this response, please charge Deposit Account No. 19-0513. This authorization is intended to act as a constructive petition for an extension of time, should an extension of time be needed as a result of this response. The examiner is invited to telephone the undersigned if this would in any way advance the prosecution of this case.

Respectfully submitted,

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14